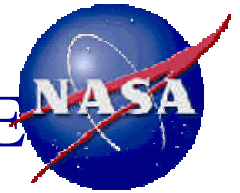# nasa

PERFORMANCE EVALUATION PROFILE

(PEP)

OCCUPATIONAL SAFETY AND HEALTH PROGRAM
& SYSTEM SAFETY PROGRAM
EVALUATION CAPABILITIES AND TECHNIQUES

MARCH, 2001

PERFORMANCE EVALUATION PROFILE CAPABILITIES

- **REQUIREMENTS**
  - OSHA 1960 Requires Annual Safety Program Self-Assessments For All Federal Agencies
  - OSHA VPP TED 8.1a Requires That "The Applicant Must Have A System For Annually Evaluating The Operation Of The Safety And Health Program."
  - NASA ASI Requires That "Self-Evaluation (Of Each Center) Be Performed Documenting How Each Center Is Meeting The Core Requirements For Occupational Safety and Health." The ASI Also Requires That Detailed Metrics Be Used To Monitor And Manage The Progress And Effectiveness Of Safety Programs

PERFORMANCE EVALUATION PROFILE CAPABILITIES

- **THE BOTTOM LINE**
  - Dr. W. Edwards Deming Said It Best – "If You Can't Measure It, You Can't Manage It."
  - The PEP Provides A Comprehensive And Proactive Means To Measure Safety And Health Programs
    - Employee and Management Views Of Their Safety Programs
      - Ratings For Each
      - Comparative Analysis of the Two Views
    - **NEW** **Statistical Analysis of Actual Safety And Health Program Historical Information**
      - Converted to PEP Rating Format
      - Comparative Analysis With Survey Results

PERFORMANCE EVALUATION PROFILE CAPABILITIES

- **THE BOTTOM LINE (continued)**
  - The PEP Provides A Comprehensive And Proactive Means To Measure Safety And Health Programs (continued)
    - **NEW** **Job Hazard Analysis Checklist**
      - Provides Individual Job/Task Assessment
      - Provides 2/3 of a Comprehensive Job Hazard Analysis
        - » Does Not Provide Job/Task Process Analysis
      - Provides Facility Overall Assessment
    - **NEW** **Mishap, Hazard, and Close-call Common Cause and Trend Analysis**
      - Provides For Focused Safety Inspections and Audits
        - » By Organizations
        - » By Safety and Health Personnel

PERFORMANCE EVALUATION PROFILE CAPABILITIES

Date: March 13, 2001

From: Irwin Hopson, Independent Consultant

RE: Relationship between PEP Survey and External Safety Surveys

An interesting finding was discovered during the External Safety Survey of JSC Center Operations Directorate (JA), the OSHA onsite review for VPP certification for BRSP (JA), and the results of the PEP Survey--all findings matched up. Also the results of the External Survey of Ellington Flight Crew Directorate (CA), a preliminary visit by the OSHA Field Coordinator for Region VI VPP, and the results of the PEP Survey for CA matched up as well. This tells me that the PEP Survey is an excellent tool to be used internally to gauge how effective an organization's Safety and Health Program is.

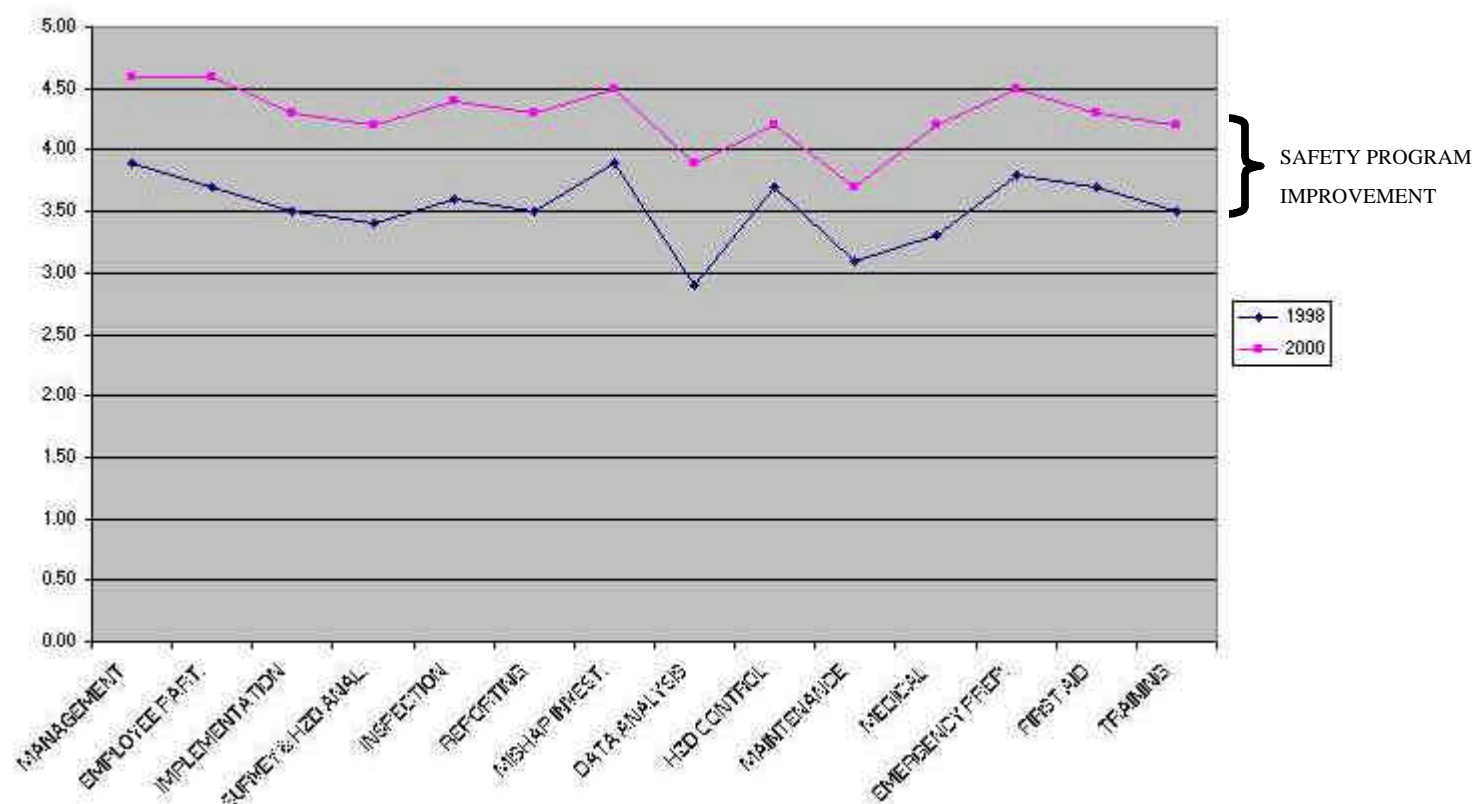# PERFORMANCE EVALUATION PROFILE CAPABILITIES

PEP OCCUPATIONAL SAFETY AND HEALTH SURVEY DATA

PERFORMANCE EVALUATION PROFILE CAPABILITIES

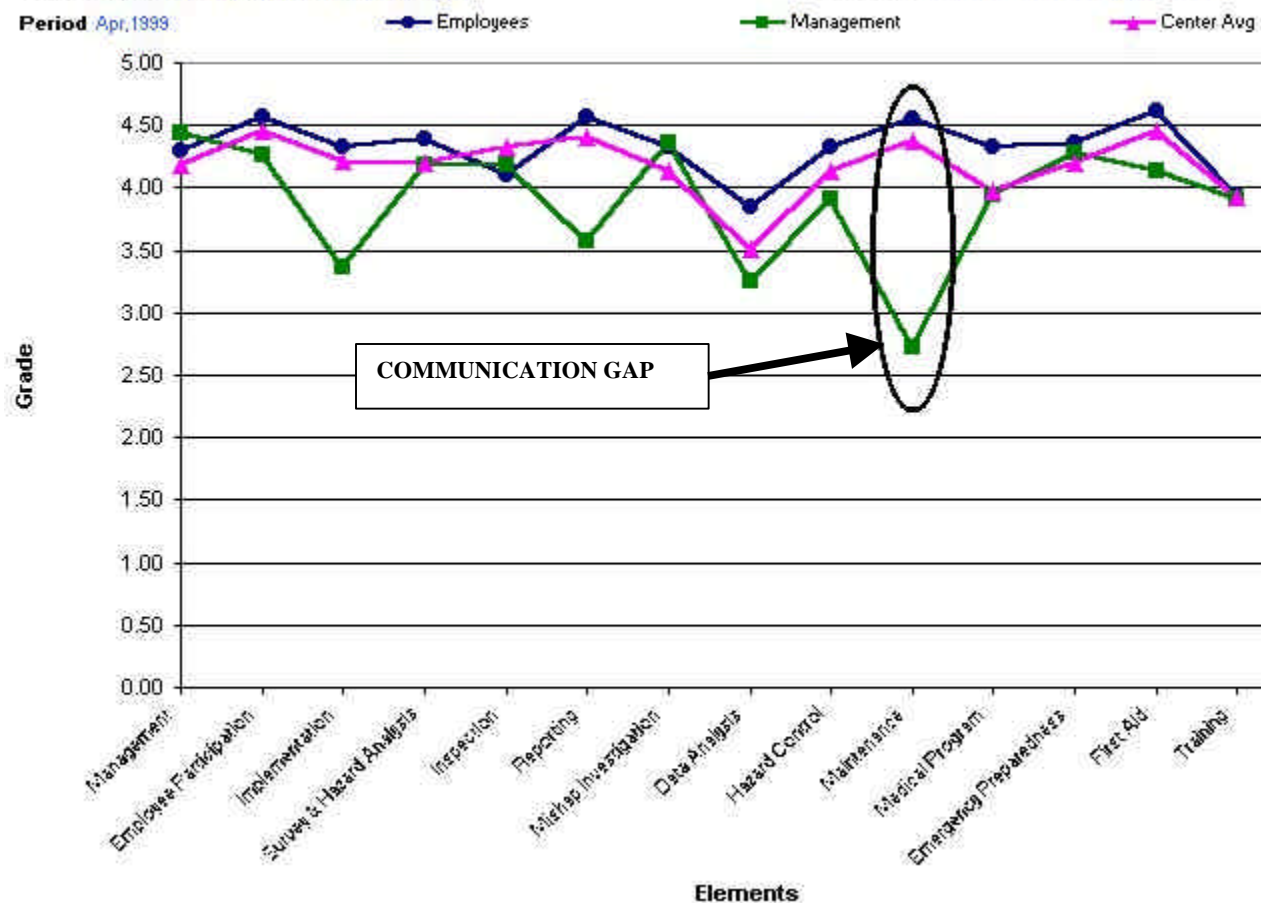Civil Service Managers PEP Occupational Safety Survey Benchmark Analysis

PERFORMANCE EVALUATION PROFILE CAPABILITIES

Nasa Organization: Generic

Organization: Rolled up to Nasa Organization Level

Period Apr, 1999

Division: Rolled up to Nasa Organization Level

- Employees
- Management
- Center Avg

COMMUNICATION GAP

PERFORMANCE EVALUATION PROFILE CAPABILITIES

Tuesday, September 28, 1999

Occupational Safety Performance Evaluation Profile (PEP) Scoreboard for Management
Johnson Space Center

For Period
Aug, 1999

Supported Nasa Organization: Generic
Organization: General

INDIVIDUAL ORGANIZATION SCORES

PEP Score for Management

| | Management Leadership and Employee participation | | | | Worksite Hazard Analysis | | | | | Hazard Prevention and Control | | | | Safety Health Training |
| | Management Leadership and Employee participation | | | | Workplace Analysis | | | Accident and Record Analysis | | Hazard Prevention and Control | | | Emergency Response | Safety Health Training |
	Management Leadership	Employee Participation	Implementation Tools	Contractor Safety	Survey and Hazard Analysis	Inspection	Reporting	Accident Investigation	Data Analysis	Hazard Control	Maintenance	Medical Program	Emergency Preparedness	First Aid	Training
Code 100	4.6	5.0	5.0	4.7	4.7	5.0	4.3	5.0	4.7	4.7	4.5	4.7	5.0	4.7	3.9
Code 200	5.0	5.0	5.0			5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0
Code 300	4.9	4.9	4.7	4.7	4.7	4.3	4.3	5.0	4.6	4.0	4.0	4.7	4.7	5.0	4.3
Code 400	4.6	4.3	4.3	4.9	4.6	4.9	4.7	4.7	4.9	4.7	4.0	4.6	4.9	4.7	3.9
Code 500	4.9	5.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	4.0
15 Element Avg.	4.7	4.8	4.7	4.8	4.6	4.7	4.4	4.8	4.7	4.4	4.2	4.6	4.9	4.7	4.1
6 Element Avg.				4.7			4.6		4.8			4.4		4.8	4.1
4 Element Avg.				4.7					4.6					4.6	4.1
Overall Score	4.6														

OVERALL SCORE

CONTRACTOR SAFETY PROGRAM EVALUATION

ASI ELEMENT SCORES

PERFORMANCE EVALUATION PROFILE CAPABILITIES
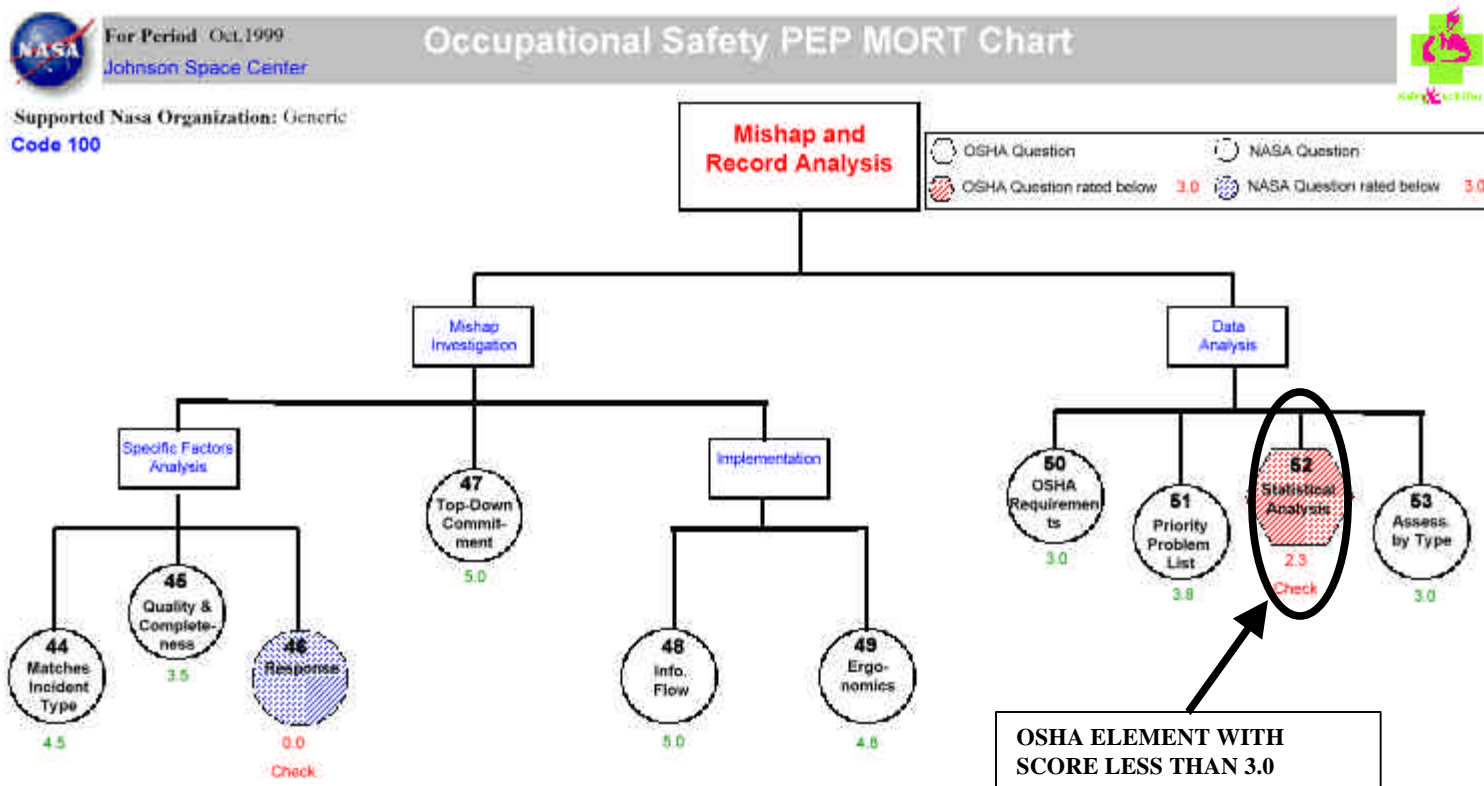
PERFORMANCE EVALUATION PROFILE CAPABILITIES
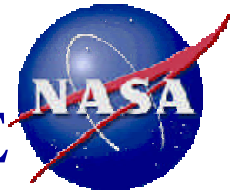
Occupational Safety Get Well Plan
Johnson Space Center

For Period
Oct, 1999

Supported Nasa Organization: Generic

Organization: General

Code 100

Recommendations for improvement on your existing Safety and Health Program for Questions rated below 3.0

MANAGEMENT LEADERSHIP AND EMPLOYEE PARTICIPATION

MANAGEMENT LEADERSHIP

Q 1 - (ASI, CPR 1, para. v, & viii) (OSHA 1960.11) Safety policy should be reflected in position descriptions and performance plans for all employees.

Q 5 - (ASI, CPR 1-4) The NASA Administrator requires that all managers and employees be familiar with the requirements of the ASI.

WORKPLACE ANALYSIS

SURVEY AND HAZARDS ANALYSIS

Q 30 - (OSHA TED 8.1a, Appendix A, para. C) A job hazard analysis should be conducted on every job to ensure that all hazards are identified and any necessary controls are in place.

MISHAP RECORDS AND ANALYSIS

MISHAP INVESTIGATION

Q 46 - (OSHA 1960.28) Employees should be notified within 15 working days after submitting a close call report.

DATA ANALYSIS

Q 52 - (OSHA TED 8.1a, Appendix D, "General") Statistical injury and illness data should be fully analyzed and effectively communicated to employees.

OSHA CRITERIA

PERFORMANCE EVALUATION PROFILE CAPABILITIES

Occupational Safety PEP Comments for Employees

Johnson Space Center

Monday, February 07, 2000

1/13/00	We have a very good safety program at JSC. I feel in some cases we are spending time on issues that could have been resolved with a little common sense.
1/14/00	I have only been 2 1/2 months, so I am not familiar with all procedures.
1/14/00	For my company only, they have not taken an active part in promoting safety for its employee's its safety representative is not qualified and is not properly trained and constantly provides false information about safety and osha regulations and on one documented occasion placed employee's in harm's way and has used verbal threat of disciplinary action to those who use the close call reporting system at jsc and for more than one reason, they don't want any fines or nasa or anyone prying into their business. Nasa is a step above in promoting safety.
1/17/00	Housekeeping on entire site needs improvement.
1/19/00	Include females in the safety programs, safety meetings, utilize as instructors. I'm not talking about just one or two. We need to have safety representation, not intimidation. Thank you.
1/24/00	Our company's training instructor does not know how to properly train personnel. If a suggestion or argument in brought up over an issue by an employee, there is no flexibility with what is trained. In our line of work, there is a lot of common sense utilized by us. If the common sense is not there, there could be a serious potential hazard that could go against us while out on the scene of an incident. According to our training "instructor", there is "absolutely no room for flexibility" with instructions given. If we do what we know is best out on the scene, then we are in fear of disciplinary action from the company. There have been on occasions that we have had to argue our reasoning for doing what we did. As having been trained way beyond what this company can ever provide for us, then there are some instances where "survival techniques" kick in.

In my opinion, our training "instructor" should not even be instructing us. He does not have any training skills. He is very incompetent with what he is teaching. It is like he is reading from a book. When we try to discuss an issue with him in the training room, he gets frustrated with our opinion on the issue and he shuts us down.

I could go on and on with this what I call a "Major Problem" with our training. I can not emphasize enough that our job requires some competent trainers so that we can get the training that we are long over due. |

By: Team

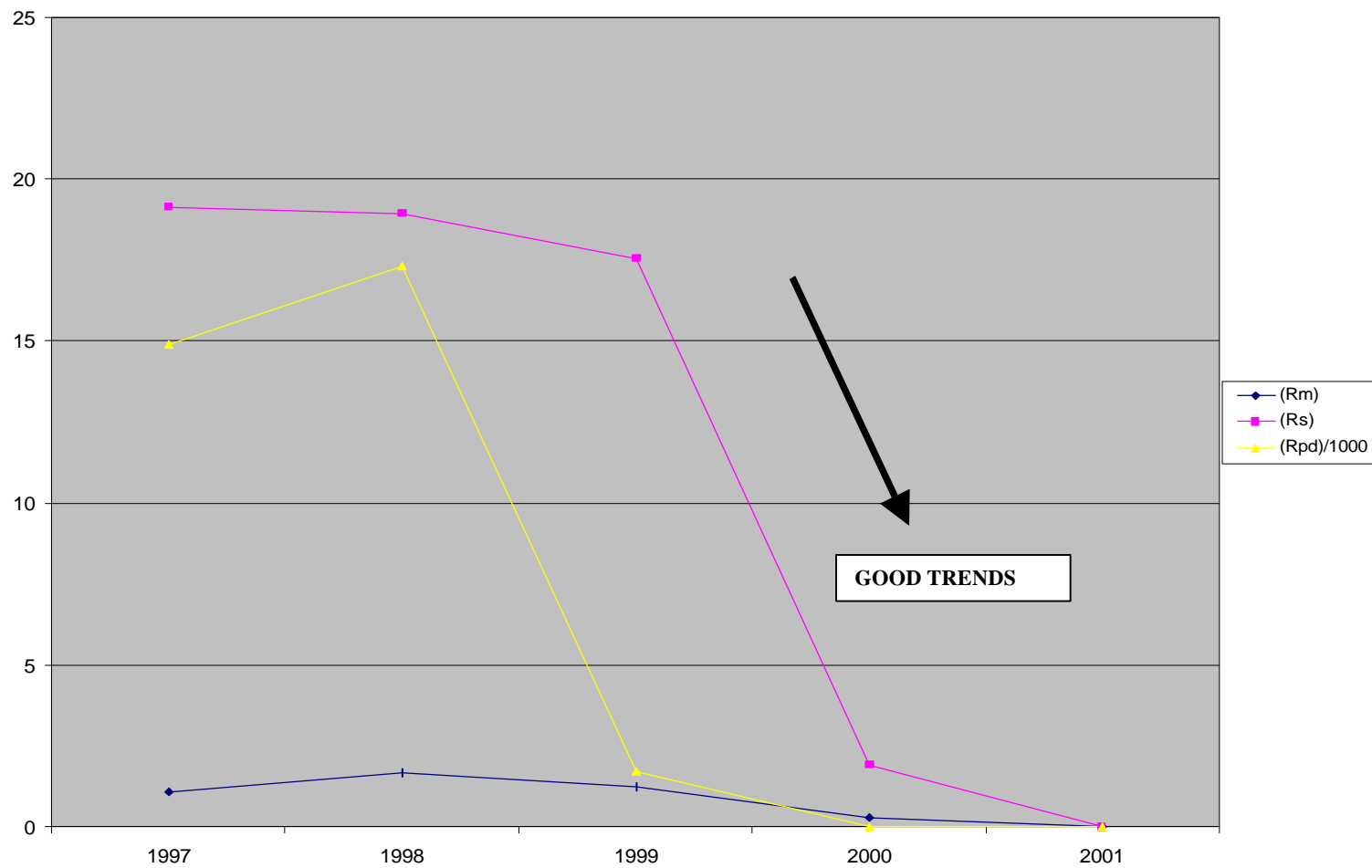Page 1 of 2

PERFORMANCE EVALUATION PROFILE CAPABILITIES

PEP HISTORICAL MISHAP DATA STATISTICAL ANALYSIS

PERFORMANCE EVALUATION PROFILE CAPABILITIES

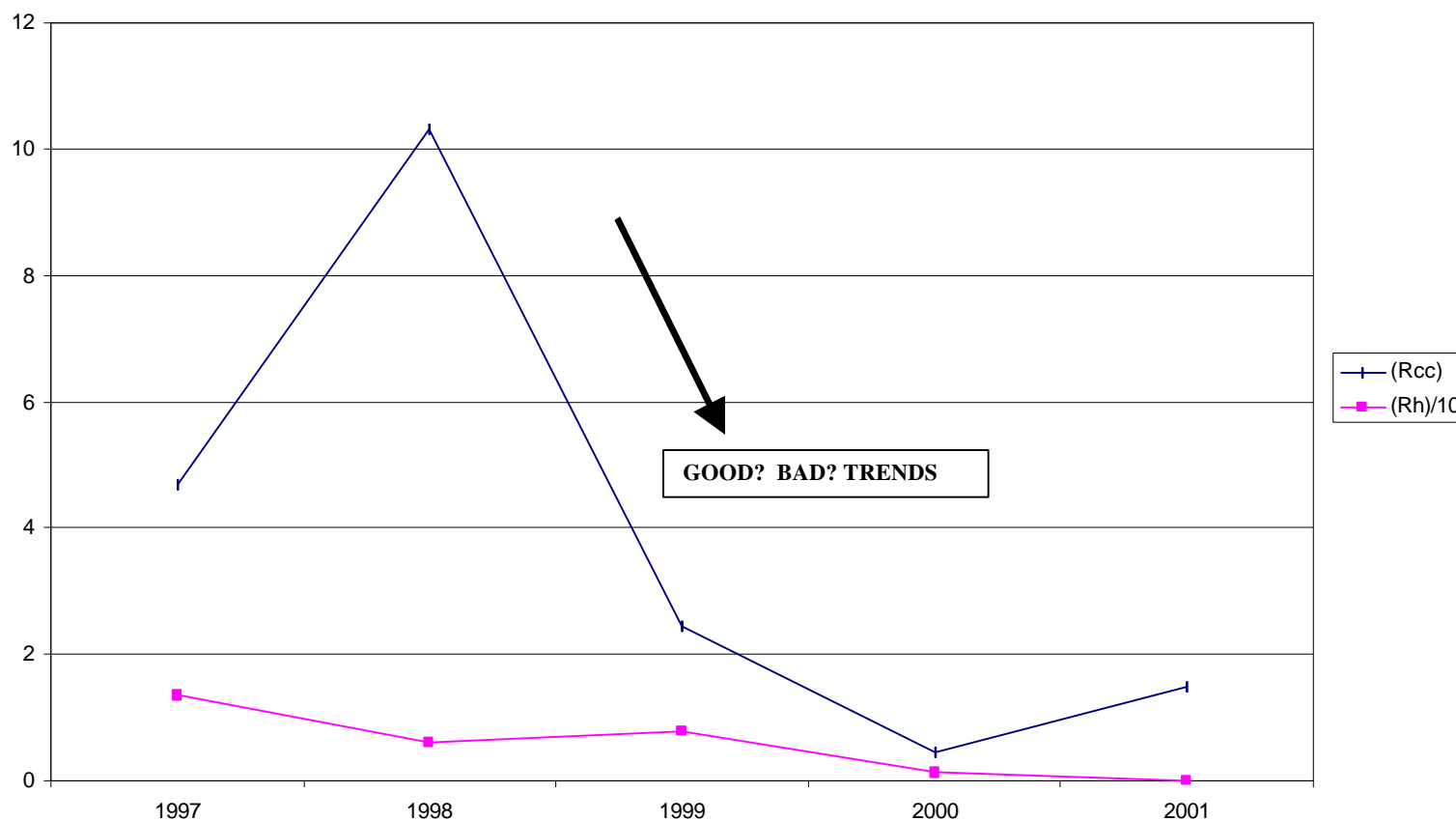**Mishap, Severity, and Property Damage Rates (per 100 emp)**

PERFORMANCE EVALUATION PROFILE CAPABILITIES

Center: Johnson Space center

Supported NASA Organization:

Organization:

JSC Hazard and Close Call Rates (Per 100 emp)

GOOD? BAD? TRENDS

Legend:
- (Rcc)
- (Rh)/10

PERFORMANCE EVALUATION PROFILE CAPABILITIES

Center: Johnson Space center

Supported NASA Organization:

Organization:

Legend:
- ▲ PEP Incident Rating
- ● PEP Severity Rating
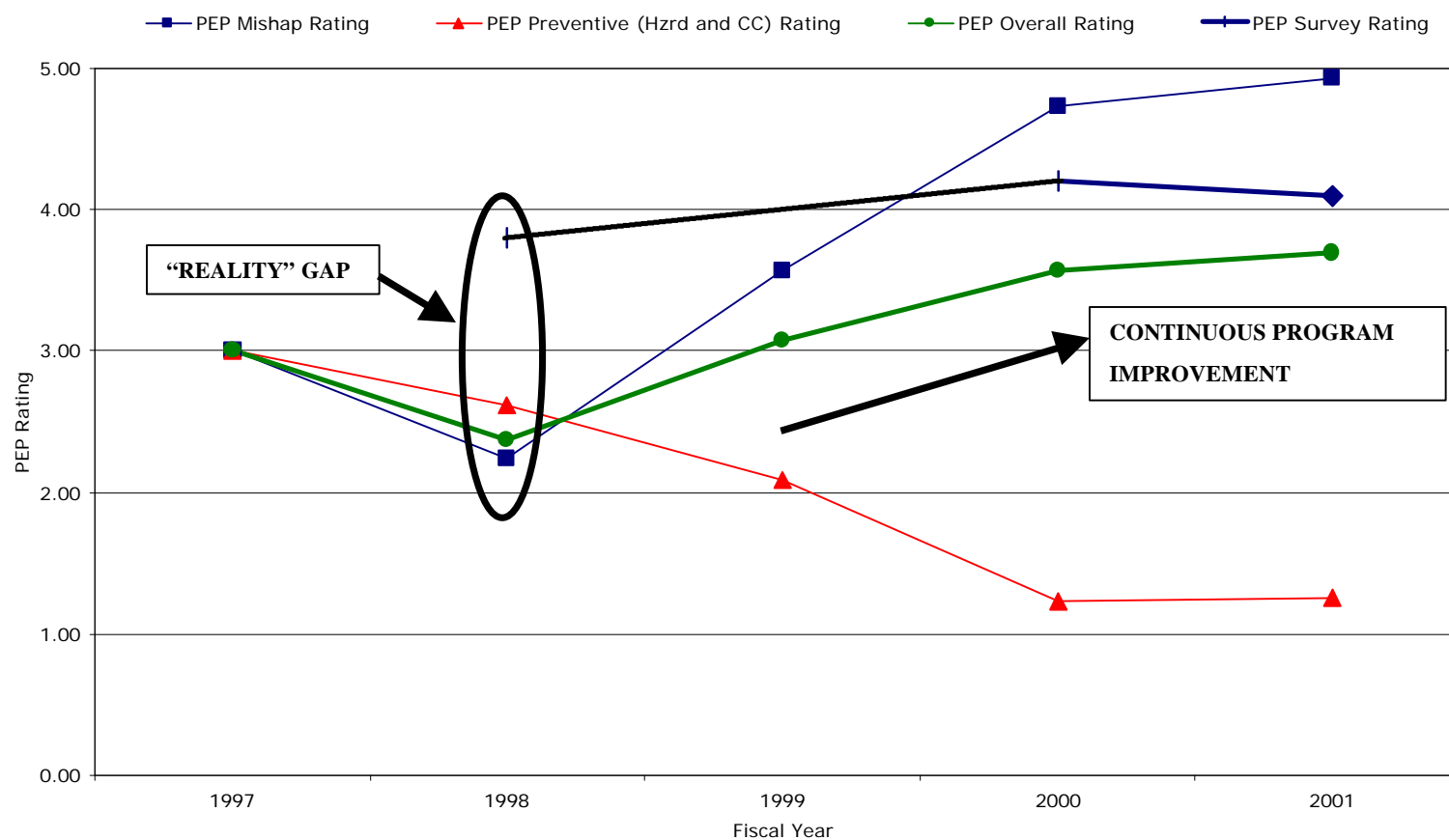- + PEP Property Damage Rating
- ■ PEP Mishap Rating

PERFORMANCE EVALUATION PROFILE CAPABILITIES

Center: Johnson Space center

Supported NASA Organization:

Organization:
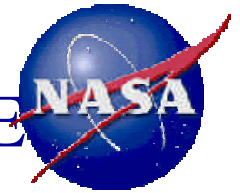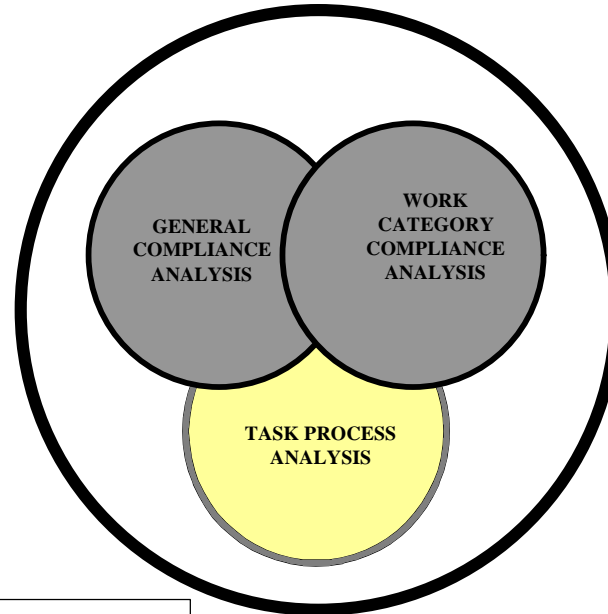
PERFORMANCE EVALUATION PROFILE CAPABILITIES

PEP JOB HAZARD ANALYSIS
CHECKLIST

PERFORMANCE EVALUATION PROFILE CAPABILITIES

ELEMENTS OF A JOB HAZARD ANALYSIS

GENERAL COMPLIANCE ANALYSIS

WORK CATEGORY COMPLIANCE ANALYSIS

TASK PROCESS ANALYSIS

LEGEND:
   Grey – Included in
      Automated JHAC
   Yellow – Not Included

PERFORMANCE EVALUATION PROFILE CAPABILITIES

ELEMENTS OF A JOB HAZARD ANALYSIS

GENERAL COMPLIANCE ANALYSIS
- Illumination
- Noise
- Sanitation
- Emergency Preparedness
- Fire/Emergency Protection
- Work Area (Aisles, Walkways, Exits, Etc.)

WORK CATAGORY COMPLIANCE ANALYSIS
- Permits and Certifications
- Training
- Support Systems (Ventilation, Systems Conditions, Special Equipment)
- Warnings and Placards
- PPE Requirements (Availability, Maintenance, Training)
- Procedures and Plans
- Special Considerations (Access Restrictions, Vehicle Requirements, Etc.)

TASK PROCESS ANALYSIS
- Detailed Step-by-Step Task Breakdown
    - Hazards Identified For Each Step

PERFORMANCE EVALUATION PROFILE CAPABILITIES

Job Hazard Analysis Report

Date: 9/27/00

Name:

Job Title:

Location: Johnson Space Center, Bldg. 225 -   Floor 1

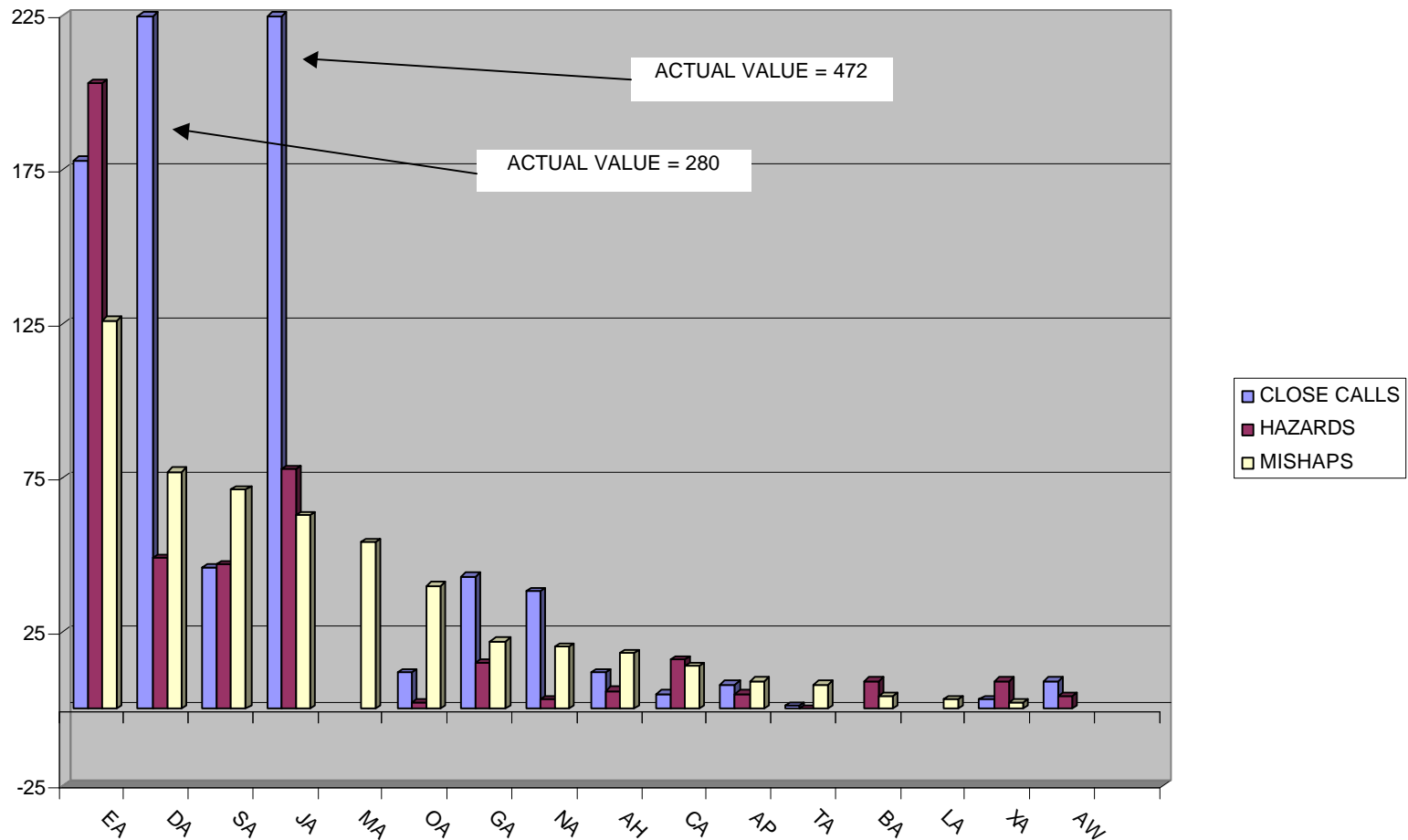| Task/Step	Hazard	Finding	Regulation
Workplace Health	Are all work areas clean, sanitary, and orderly?	NOK	(1910.22) – All places of employment shall be kept clean and orderly and in a sanitary condition.
	Is there hot water available in the restroom?	OK	
	Are all toilets and washing facilities clean and sanitary?	NOK	(1910.141) – Washing facilities shall be maintained in a sanitary condition.
	Are rooms maintained at a comfortable temperature?	NOK	(NHB 7320.1B) – Work areas shall be maintained at a comfortable temperature.
	Is the OSHA "Employee's Rights" poster properly displayed?	OK	
	Is the EEOC's Americans With Disabilities poster displayed?	OK	
	Is the Form 200, Injury and Illness Reporting Form posted?	OK	
	Is the Family and Medical Leave Act notice properly displayed?	OK	
Workplace Emergency Precautions and First Aid	Are emergency phone numbers posted where they can be readily found in case of an emergency?	OK	
	Are fire evacuation procedures posted?	OK	
	Are there signs marking the exits from the building?	OK	
	Is there emergency lighting in rooms without windows?	NOK	(1910.36) – Every building or structure shall be equipped with adequate and reliable illumination to provide for exit of the facilities.
	Are appropriate and current regional hazard protection plans (hurricane, earthquake, etc.) in place?	OK	
	Are MSDS sheets available for each type of hazardous chemical or agent present in the work area?	OK	
	Are work areas free from electrical wires in the walkways?	OK	
Workplace Fire Protection	Is the minimum clearance of 18 inches maintained between the bottom of any sprinkler head or fire detection device and the top of equipment, storage, room partitions, or mobile compact shelving within a room? This "plane of clearance" shall extend horizontally wall to wall throughout the room.	OK	
	Are fire extinguishers mounted in readily accessible locations?	OK	
	Are fire extinguishers checked monthly/periodically?	OK	
	Is the 44-inch minimum clearance maintained in all hallways, aisles, and major passageways between partitions or cubicles?	OK	

PERFORMANCE EVALUATION PROFILE CAPABILITIES

PEP MISHAPS, HAZARDS, AND CLOSE-CALLS

COMMON CAUSE AND TREND ANALYSIS
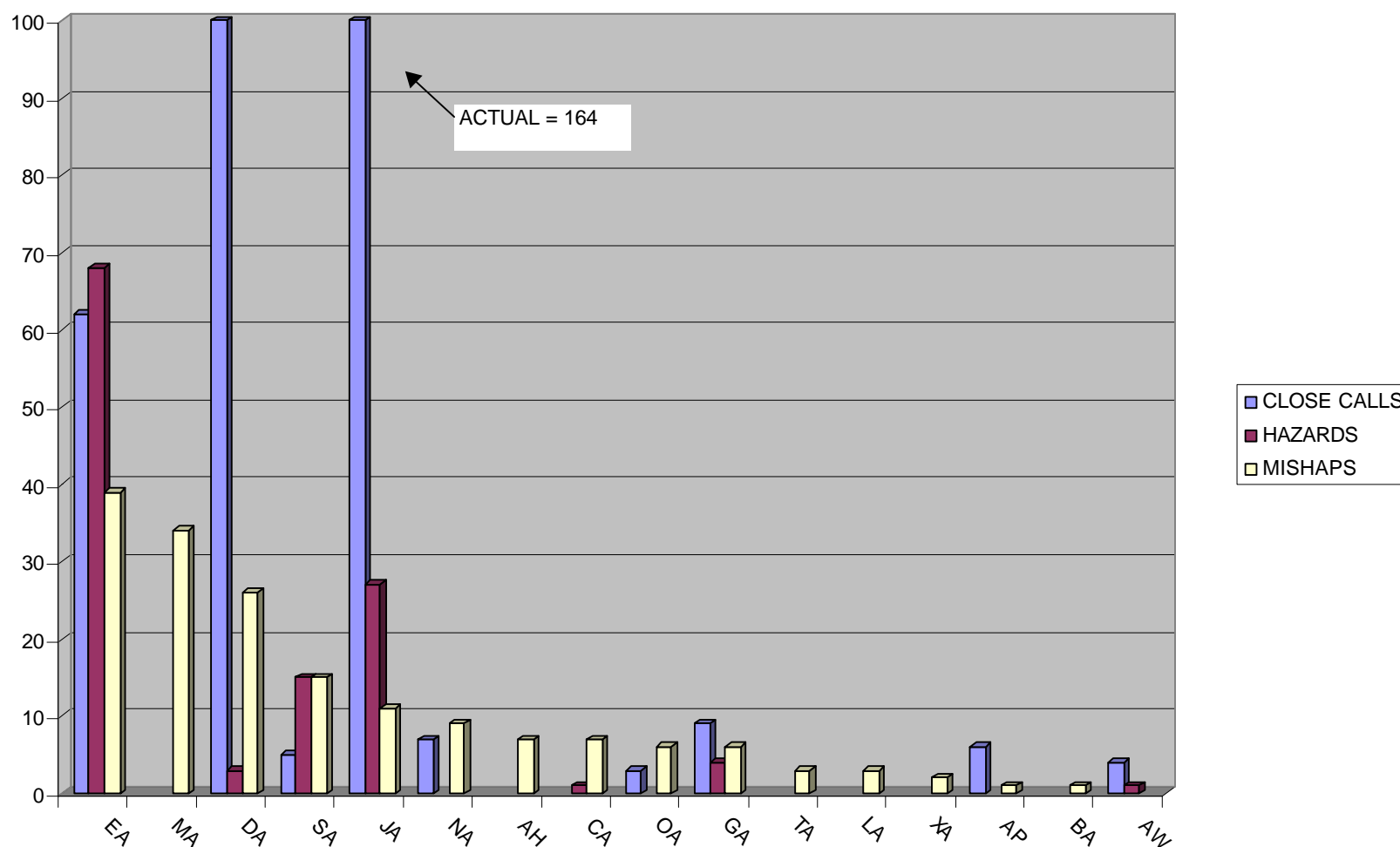
PERFORMANCE EVALUATION PROFILE CAPABILITIES

JSC FISCAL YEAR 2000 SAFETY SUMMARY ANALYSIS BY ORGANIZATION

ACTUAL VALUE = 472

ACTUAL VALUE = 280

CLOSE CALLS
HAZARDS
MISHAPS

EA DA SA JA MA OA GA NA AH CA AP TA BA LA XA AW

PERFORMANCE EVALUATION PROFILE CAPABILITIES

JSC FISCAL YEAR 2001 SAFETY ANALYSIS SUMMARY BY ORGANIZATION
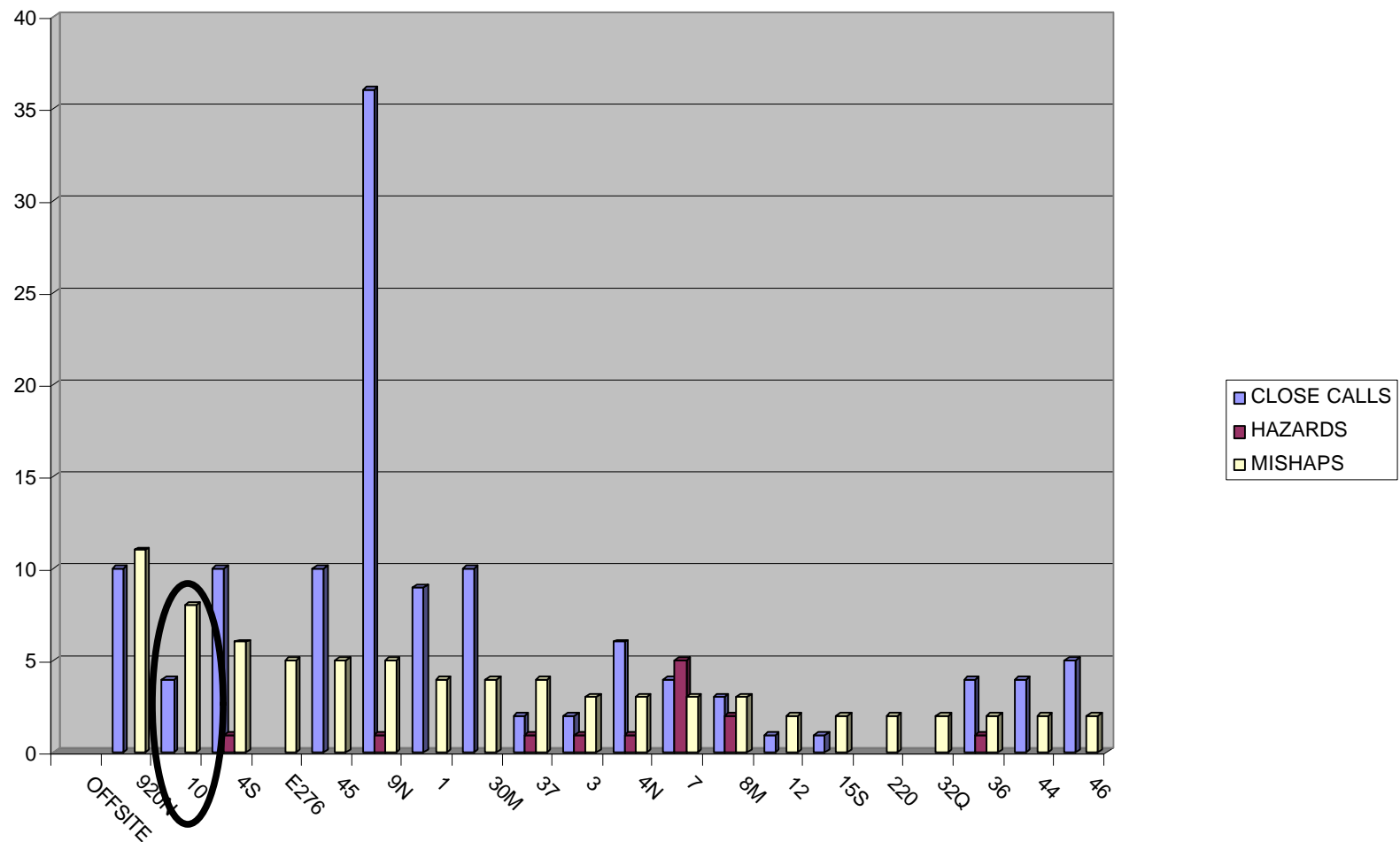
PERFORMANCE EVALUATION PROFILE CAPABILITIES

JSC FISCAL YEAR 2000 SAFETY ANALYSIS SUMMARY BY BUILDING

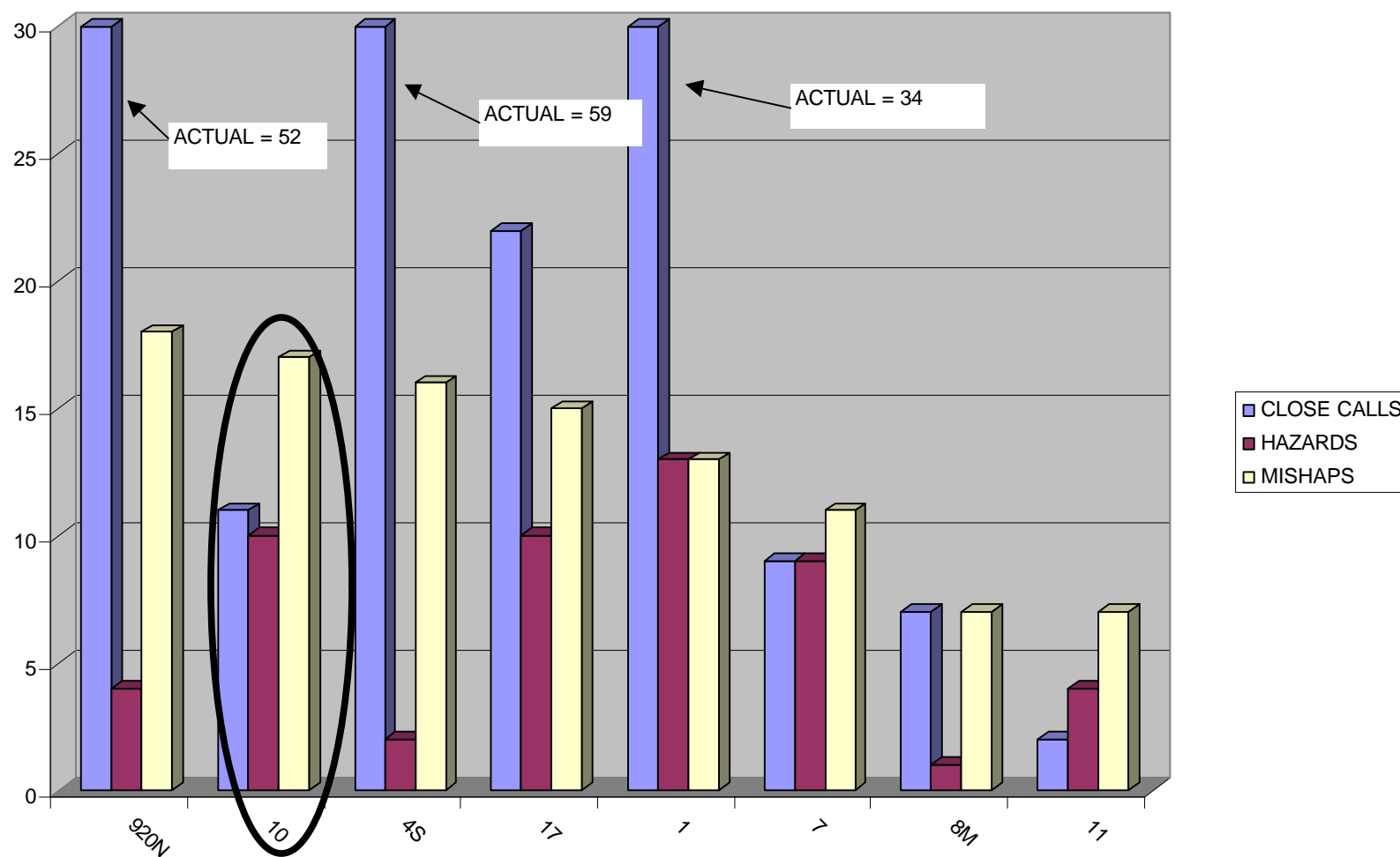# PERFORMANCE EVALUATION PROFILE CAPABILITIES

JSC FISCAL YEAR 2001 SAFETY ANALYSIS SUMMARY BY BUILDING

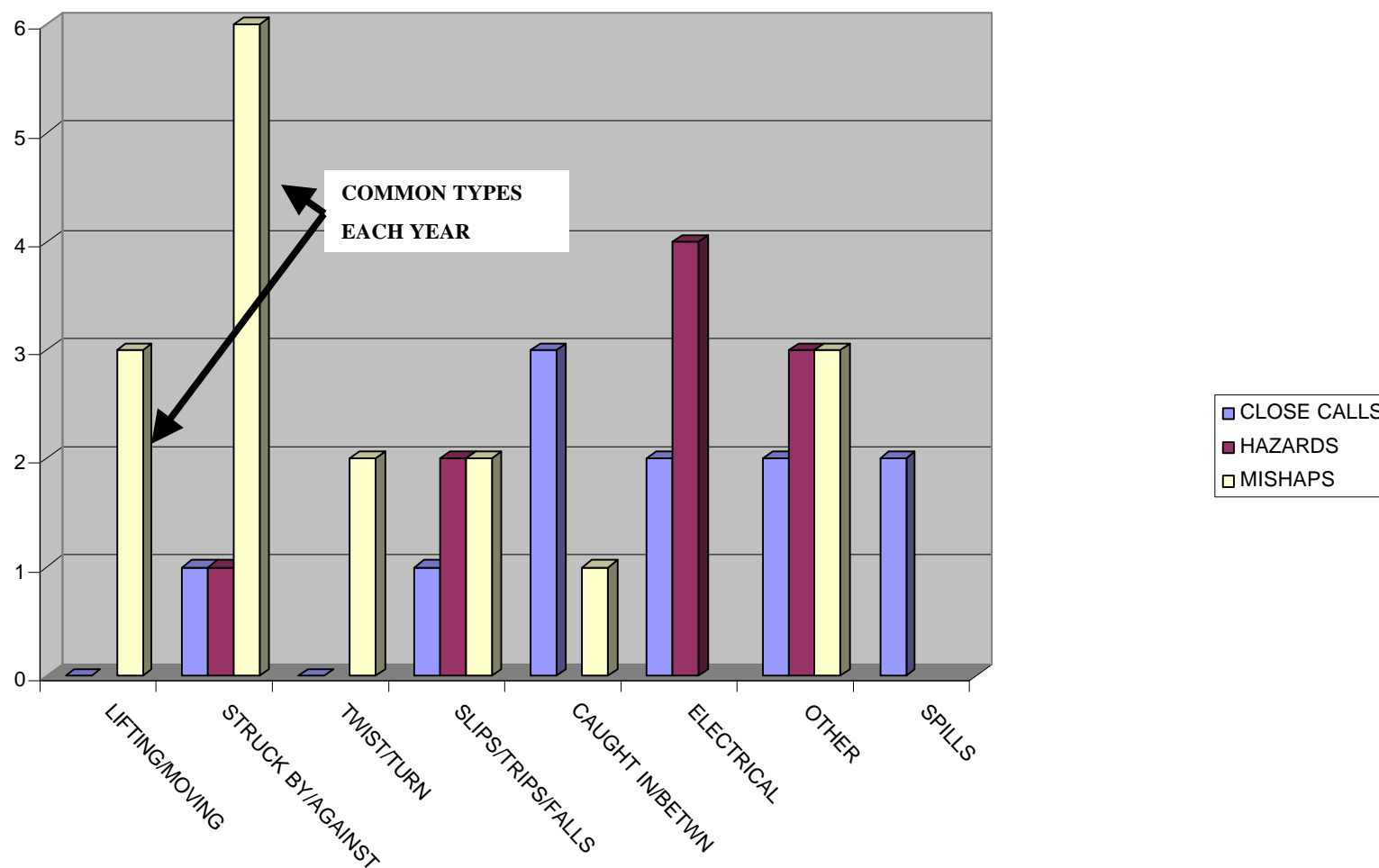# PERFORMANCE EVALUATION PROFILE CAPABILITIES

JSC FISCAL YEAR 2000 SAFETY ANALYSIS SUMMARY BY BUILDING
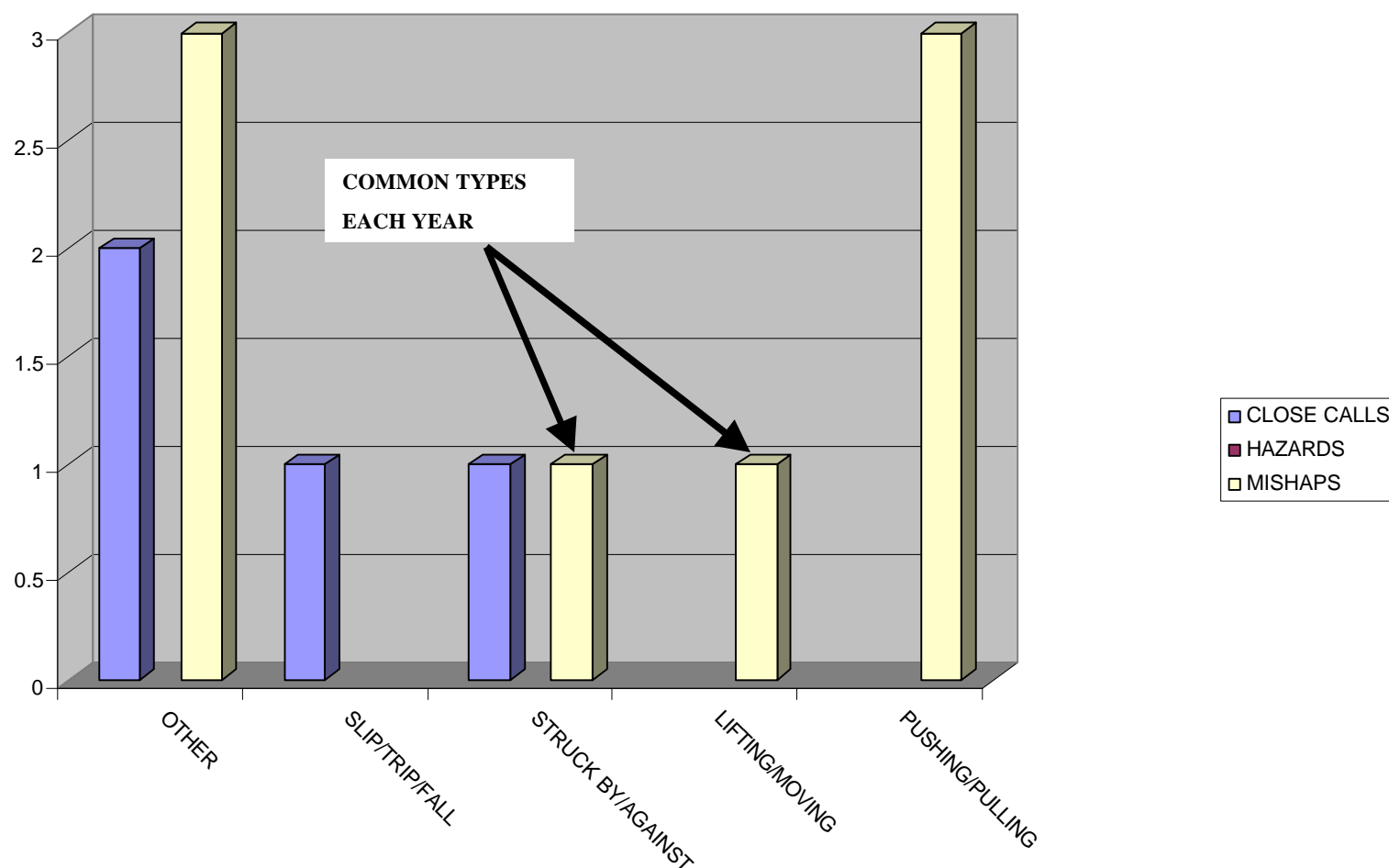
PERFORMANCE EVALUATION PROFILE CAPABILITIES

JSC BUILDING 10 FISCAL YEAR 2000 SAFETY ANALYSIS SUMMARY

COMMON TYPES
EACH YEAR

CLOSE CALLS
HAZARDS
MISHAPS

LIFTING/MOVING
STRUCK BY/AGAINST
TWIST/TURN
SLIPS/TRIPS/FALLS
CAUGHT IN/BETWN
ELECTRICAL
OTHER
SPILLS
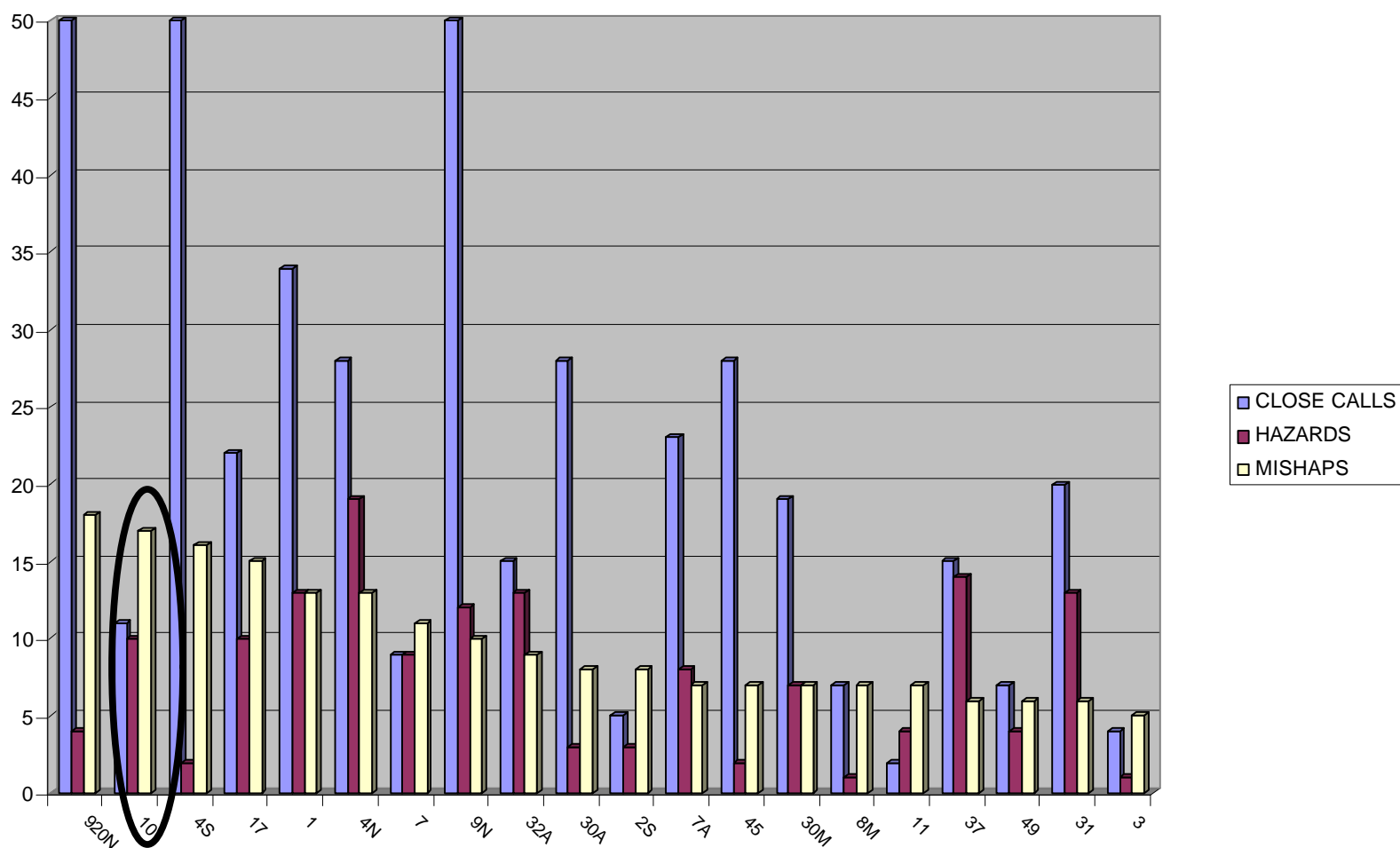
PERFORMANCE EVALUATION PROFILE CAPABILITIES
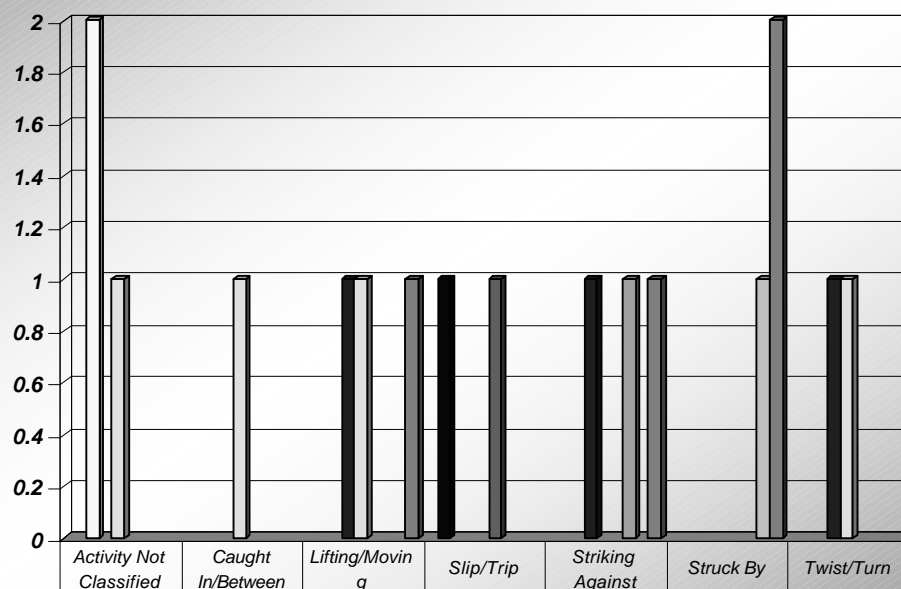
JSC BUILDING 10 FISCAL YEAR 2001 SAFETY ANALYSIS SUMMARY

PERFORMANCE EVALUATION PROFILE CAPABILITIES

JSC FISCAL YEAR 2000 BLDG 10 MISHAPS BY CAUSE/ACTIVITY

MISHAP CAUSE TRENDS

	Activity Not Classified	Caught In/Between	Lifting/Moving	Slip/Trip	Striking Against	Struck By	Twist/Turn
■ OTHER				1			
□ FIRE/EXPLS - HIGH HEAT SOURCE	2						
■ HANDLING - DESIGN DEFICIENCY			1		1		1
□ HANDLING - DEVIATION FROM PROCEDURE	1	1	1				1
■ HAZARDOUS OPERATION - IMPROPER GUARDING				1			
■ HUMAN FACTORS - LACK OF ATTENTION					1		
■ HUMAN FACTORS - LACK OF AUTHORITY						1	
■ HUMAN FACTORS - MISJUDGEMENT OF CONDITIONS			1		1	2	

PERFORMANCE EVALUATION PROFILE CAPABILITIES
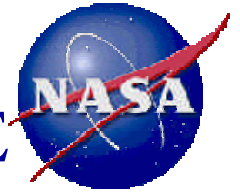
- ## SUMMARY
  - THE PEP PROVIDES "END-TO-END" SAFETY AND HEALTH PROGRAM EVALUATION
    - Provides A "Focused" Approach To Application Of Critical Resources To The Most Critical Areas
    - Identifies Specific Problem Areas Within Organizations And/Or Facilities
    - Identifies Safety Issues Down To Individual Job/Task Level
    - Provides Comparison Of "Safety Program Knowledge" To "Safety Program Implementation Results"

PERFORMANCE EVALUATION PROFILE CAPABILITIES

PEP SYSTEM SAFETY SURVEY

DATA RESULTS

PERFORMANCE EVALUATION PROFILE CAPABILITIES

- **CONFUSION AROSE DURING FY2000 SYSTEM SAFETY SURVEY REGARDING WHO SHOULD TAKE THE SURVEY**
  - **<u>Program Managers And Technical Staff Only</u> Should Take The Survey**
    - Managers
    - Engineers
    - Operations Personnel
  - **<u>Administrative Personnel Should Not Take The Survey</u>**
    - Technicians
    - Secretarial
    - Administrative (Budgets, Personnel, Legal, Etc.)

PERFORMANCE EVALUATION PROFILE CAPABILITIES

System Safety Performance Evaluation Profile (PEP) Scoreboard for Employees											
Center									Tuesday, January 11, 2000		
Supported Nasa Organization: Research Facilities											

PEP Score for Employees	Management Leadership and Employee participation		Worksite Hazard Analysis		Hazard Prevention and Control				Safety Health Training			
	Management Commitment	Employee Involvement	Hazard Analysis	Risk Analysis	System Design Safety	Hazard Controls	Prob Reporting & Analysis	Mishap Reporting	Analysis Training	System Training	Operators Training	Support Training
Research Facilities	3.5	3.5	3.6	3.4	2.9	3.3	3.0	2.9	2.9	2.6	3.0	2.7
12 Element Avg.	3.5	3.5	3.6	3.4	2.9	3.3	3.0	2.9	2.9	2.6	3.0	2.7
4 Element Avg.		3.5		3.5				3.0				2.8
Overall Score	3.2											

PERFORMANCE EVALUATION PROFILE CAPABILITIES

PERFORMANCE EVALUATION PROFILE CAPABILITIES

PERFORMANCE EVALUATION PROFILE CAPABILITIES

Research Facilities

Recommendations for improvement on your existing Safety and Health Program for Questions rated below 3.0

MANAGEMENT COMMITMENT & EMPLOYEE INVOLVEMENT

MANAGEMENT COMMITMENT

Q 7 - (NPG 7120.5a, para. 1.3.d, & 4.2)(NPG 8715, para. 3.5.1.6) Decisions regarding acceptance of residual hazards shall be made only by program management and based on an assessment of the risk involved.

SYSTEM HAZARD AND RISK ANALYSIS

RISK ANALYSIS

Q 22 - (NPG 8715, para. 3.6.1)(MIL-STD 882C, para. 4.5) Risk should be categorized by standard classifications of severity and liklihood of occurrence.

HAZARD PREVENTION AND CONTROL

SYSTEM DESIGN SAFETY

Q 26 - (NPG 8715, para. 3.8) Preliminary Hazard Analysis should be conducted in the program conceptual phase and become the foundation of the system safety specification for use in systems design

Q 28 - (NPG 8715, para. 3.8.1.3)(MIL-STD 882C, para. 4.3) Assure that safety criteria, limitations, and requirements result in maintaining the desired levels of acceptable risk.

HAZARD CONTROLS

Q 30 - (NPG 8715, para. 3.5.1.6)(MIL-STD 882C, para. 4.1.1) Acceptance of residual hazards and their associated controls shall be the responsibility of program management.

PROBLEM REPORTING AND ANALYSIS

Q 37 - (NPG 8715, para. 3.5.1.5)(MIL-STD 882C, para. 4.2.i) The NASA Lessons Learned Information System should be used to provide lessons learned information and analysis.

MISHAP REPORTING

Q 40 - (NPG 8715, para. 3.3.4) A mishap reporting tracking system should be provided to track mishap histories and to expedite incorporation of corrective actions

**TRAINING**

ANALYSIS TRAINING

Q 41 - (NPG 8715, para. 4.5)(NPD 1000.1) SMA personnel should have comprehensive training in their respective disciplines.

PERFORMANCE EVALUATION PROFILE CAPABILITIES
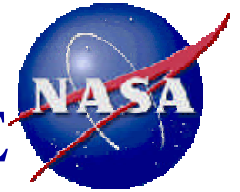
- ## SUMMARY
  - THE PEP SYSTEM SAFETY SURVEY PROGRAM
    - Provides Insight Into Program System Safety Requirements Implementation As Measured Against NASA Standards
    - Provides "Actual" Versus "Intended" Comparison
    - Provides "Get Well" Information to Improve System Safety

PERFORMANCE EVALUATION PROFILE CAPABILITIES
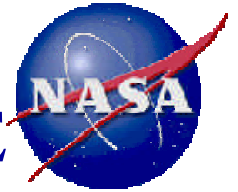
- ## OVERALL SUMMARY
  - ### OCCUPATIONAL SAFETY AND HEALTH SURVEY
    - FY 2001 Surveys
      - Sample Size Will Be 1/3 Of The Workforce
      - Optional Statistical Analysis Will Be Available
        - » Requires Submissions of 5 Year Mishap Profile
        - » Data Requirement Contained in Excel Spreadsheet Format
      - Scheduled For Completion By June 30, 2001
      - Recommend Inclusion of Contractor Workforce
  - ### SYSTEM SAFETY SURVEY
    - FY 2001 Survey
      - Sample Size Will Be 1/3 Of The Workforce
      - Scheduled For Completion By June 30, 2001

PERFORMANCE EVALUATION PROFILE CAPABILITIES

- ## RECOMMENDATION
  - Develop An Agency-Wide Common Database For Mishaps (IRIS), Hazard Tracking, and Close-Call Tracking
    - Centralize Database For Cost-Savings and Ease of Maintenance
      - Only One Database to Maintain
      - Centralized HELP Desk Function Available to All NASA Centers
    - Fully Accessible To All NASA Centers
    - Maintain Data Security For Each NASA Center
    - Advantages
      - Allows A Focused Approach To Safety Inspections By Providing Insight Into Mishap Types And Causes
      - Allows Full Utilization of PEP Capability For Detailed Safety Program "End-to-End" Evaluation
      - Does Not Require Additional Resources at NASA Centers
      - Meets VPP Requirement For Demonstrated Self-Assessment